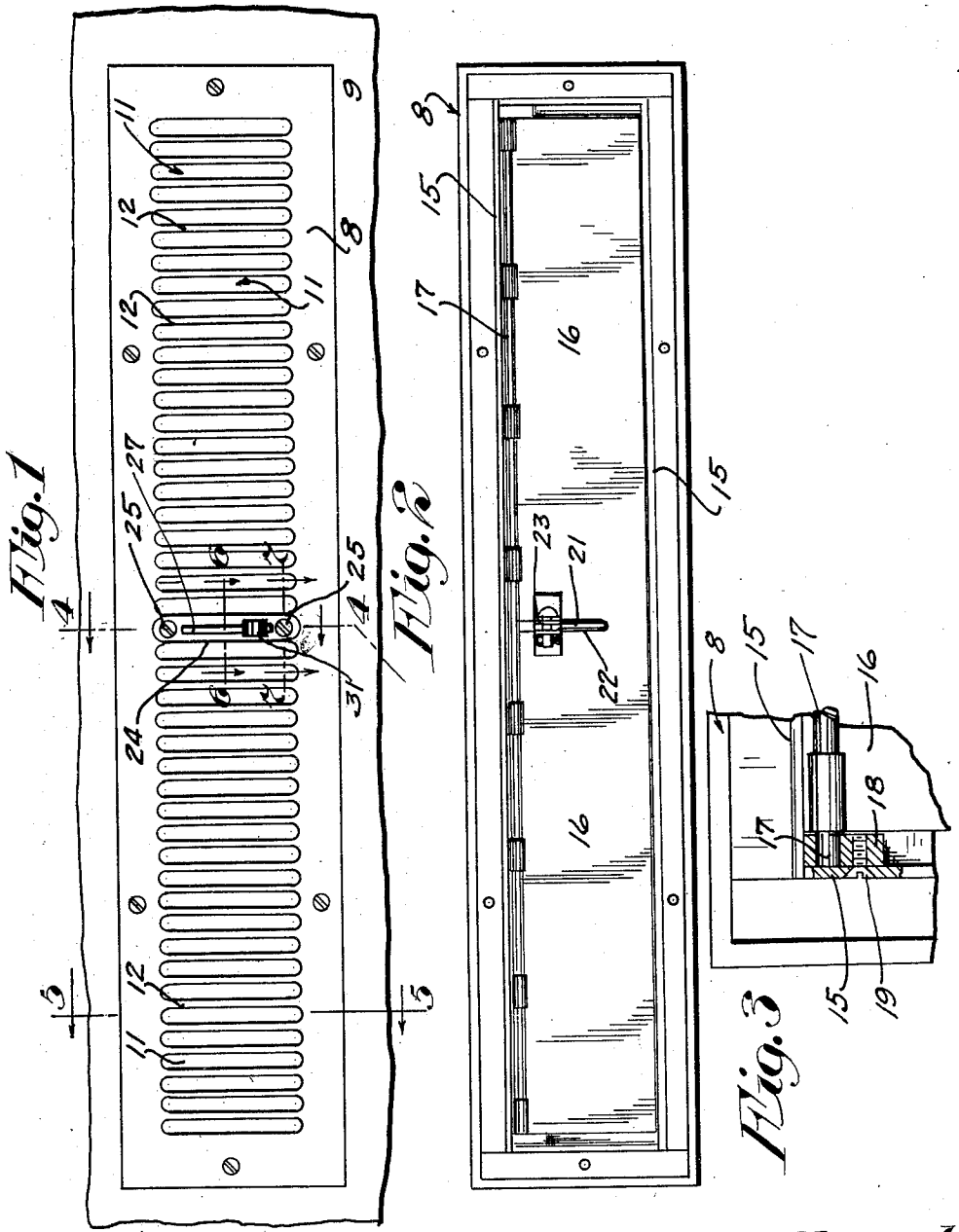
July 22, 1930. E. H. SEELERT 1,771,014

SHUTTER EQUIPPED GRILLE

Filed Feb. 7, 1929 2 Sheets-Sheet 1




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Fig. 4

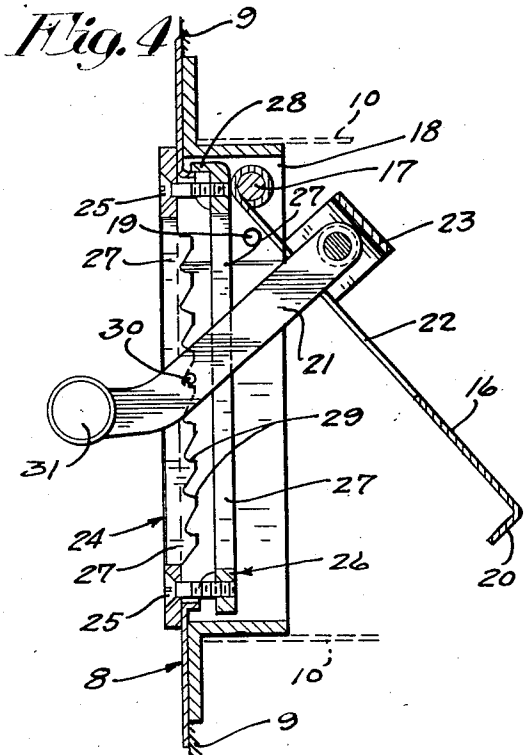



Fig. 5

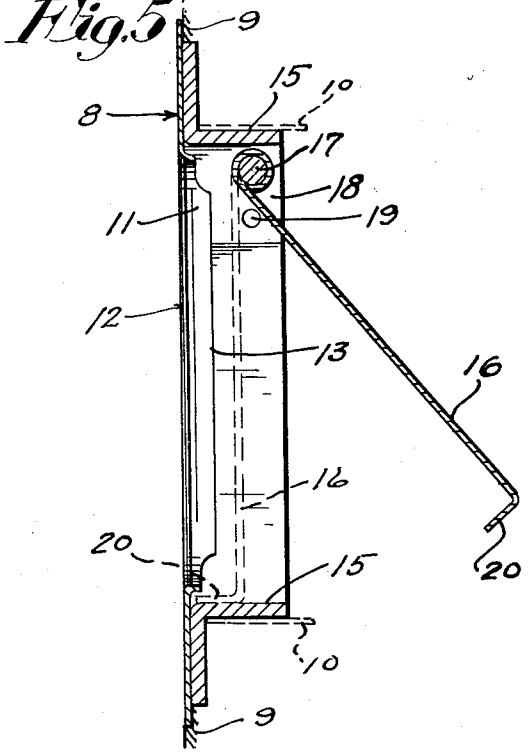



Fig. 6

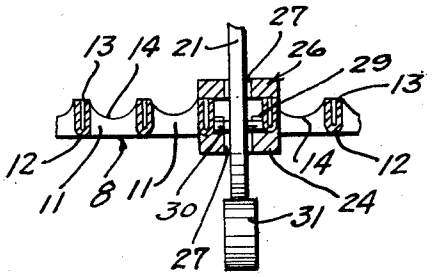
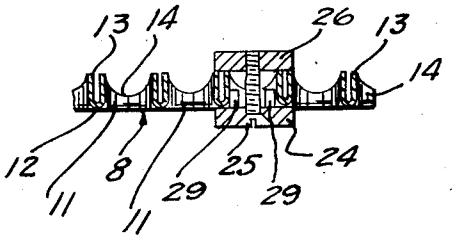



Fig. 7




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# UNITED STATES PATENT OFFICE

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## SHUTTER-EQUIPPED GRILLE

Application filed February 7, 1929. Serial No. 338,180.

My invention has for its object to provide an extremely simple and highly efficient shutter-equipped grille, intended for general use in connection with a stack, flue or the like and especially well adapted for use in connection with the stack of cabinet or concealed radiation for controlling the hot air discharged from the heat exchange unit therein, or in cutting the same off entirely without the use of a valve for said unit.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a face view of an outlet grille, in which the invention is embodied, mounted in the discharge passageway of the stack of a heat unit;

Fig. 2 is a back view of the grille removed from the stack;

Fig. 3 is a fragmentary view showing the upper left hand corner portion of the grille as shown in Fig. 2, on an enlarged scale with some parts sectioned to show the bearing for the shutter hinge rod;

Fig. 4 is a view partly in side elevation and partly in transverse vertical section taken on the line 4—4 of Fig. 1, on an enlarged scale;

Fig. 5 is a view in transverse vertical section taken on the line 5—5 of Fig. 1, on an enlarged scale;

Fig. 6 is a fragmentary view partly in plan and partly in horizontal section taken on the line 6—6 of Fig. 1, on an enlarged scale; and

Fig. 7 is a fragmentary view principally in horizontal section taken on the line 7—7 of Fig. 1, on an enlarged scale.

The outlet grille 8, in which the invention is embodied, may be used in connection with either cabinet or wall radiation and in the drawings the numeral 9 indicates a fragment of a sheet metal cabinet having at its top a discharge passageway in which said grille is mounted. When the grille 8 is used in connection with wall radiation the numeral 9 would indicate one face of said wall and the grille 8 would be connected to the discharge end of a stack as illustrated by broken lines in Fig. 4 and indicated by the numeral 10. The grille 8 is formed from a flat sheet of metal having a multiplicity of horizontally spaced relatively narrow and vertically extended slot-like openings 11 with relatively narrow intervening columns 12. Said grille 8 has an imperforate marginal portion that completely surrounds the openings 11. In forming the openings 11 in the grille 8 the displaced metal is pressed laterally rearward to form endless reinforcing flanges 13 that extend completely around each of said openings and perpendicular to said grille. Each flange 13 is reduced in height at each end of the respective opening 11, as shown in Figs. 4 to 7, inclusive, and indicated by the numeral 14 to facilitate the stamping of the flanges from the body of the grille. Obviously, the flanges 13 greatly reinforce the columns 12 and strengthen the grille 8.

The grille 8 is provided at its back with a rectangular angle frame 15 which surrounds the series of openings 11. One flange of the frame 15 rests directly on the back of the grille 8 at the imperforate marginal portion and is rigidly secured thereto by welding or otherwise and the other flange thereof extends perpendicular to said grille and is spaced from the ends of the openings 11.

A shutter 16 is provided for controlling or varying the volume flow of hot air outward through the grille 8 or for entirely closing the same. This shutter 16 is formed from a sheet of flat metal, closely fits within the frame 15 and is rigidly secured, at its upper edge portion, to a horizontal hinge rod 17 the ends of which are journaled in bearing blocks 18 detachably secured by screws 19 to the inner faces of the upright members of the frame 15, see Fig. 3. The lower horizontal edge portion of the shutter 16 is bent laterallly forward to form a reinforcing flange 20 which is closely positioned to the lower horizontal member of the frame 15 when said shutter is closed.

For operating the shutter 16 there is provided a lever handle 21 which extends through a way on the grille 8, one of the

openings 11 in said grille and a vertical slot 22 in the shutter 16 and is pivoted to and between the side members of a U-shaped bearing 23 on the back of said shutter. The way as shown is in the form of a relatively narrow upright plate 24 which bears aaginst the outer face of the grille 8 and is frictionally clamped thereon by a pair of screws 25 which have screw-threaded engagement with an anchor plate 26. This anchor plate 26 bears against the rear longitudinal edges of certain of the flanges 13 at the longitudinal edges of the opening 11 through which the lever handle 21 extends. Vertical slots 27 are formed in the way 24 and anchor plate 26 and aligned with the opening 11 through which the lever handle 21 extends with freedom for vertical swinging movement.

By reference to Fig. 4, it will be noted that the anchor plate has on its upper end a forwardly projecting stop member 28 which rests on the top of the respective flange 13 and holds the way 24 against downward shifting movement on the grille 8. The shutter 16 is gravity closed and for holding the same in different open positions there is provided two laterally spaced rows of vertically spaced ratchet teeth 29 and a cooperating transverse dog in the form of a pin 30. The ratchet teeth 29 are integrally formed with the way 24 on the back thereof, extended into the respective opening 11, engage the columns 12 at the sides thereof and hold the way against angular or horizontal edgewise movements on the grille 8.

The dog 30 extends transversely through the lever handle 21 with its end portions arranged to rest on any one pair of transversely aligned ratchet teeth 29, see Figs. 6 and 7. During the opening of the shutter 16 by the lever handle 21 the dog 30 will freely ride over the ratchet teeth 29 and automatically interlock with the pair of ratchet teeth opposite which said dog is positioned when said lever is released. The free or outer end of the lever handle 21 is transversely enlarged to form a finger piece 31 which when the shutter 16 is closed engages the way 24 at each side of its slot 26 and prevents said lever from swinging entirely within said way.

By the use of the above described shutter-equipped grille the temperature in a room may be controlled, at will, by opening or closing the shutter 16 to a greater or less degree to vary the volume flow of hot air through said grille or by completely closing said shutter the discharge of hot air may be completely cut off.

The above described shutter-equipped grille has a very neat and artistic appearance, is simple to operate and highly efficient in its action.

What I claim is:

1. The combination with a grille of the class described, of a shutter hinged to the grille, a way in the form of a plate having a slot, means for frictionally clamping the way on the grille, teeth on the way extending through the grille and engageable therewith to hold the way against shifting movement on the grille, and an operating lever attached to the shutter, working through the slot in the way and having a dog cooperating with the teeth on the way for holding the shutter in different open positions.

2. The combination with a grille of the class described having a pair of laterally spaced flanges and a passageway therebetween, of a shutter hinged to the grille, a way in the form of a plate having a slot aligned with the passageway, clamping means for securing the way to the grille and engaging the flanges as a base of resistance, teeth on the way, and an operating lever attached to the shutter working through the passageway and the slot in the way and having a dog cooperating with the teeth for holding the shutter in different open positions.

3. The structure defined in claim 2 in which the teeth are arranged in two rows that extend into said passageway, engage the grille at said passageway and hold the way against shifting movements transversely of the passageway.

4. The combination with a grille of the class described having on its back a pair of upright laterally spaced flanges and a passageway therebetween, of a shutter hinged to the grille, a way in the form of a plate at the face of the grille and having ratchet teeth, an anchor plate bearing on the flanges, screws connecting the way and anchor plate for frictionally clamping the way onto the face of the grille, and the anchor plate onto the flanges, said way and anchor plate having slots aligned with the passageway in the grille, and an operating lever attached to the shutter, extending through said passageway and the slots in the way and anchor plate, and having a dog cooperating with the ratchet teeth for holding the shutter in different open positions.

5. The structure defined in claim 4 in which the anchor plate engages a part on the grille to hold the way against downward shifting movement on the grille.

6. The structure defined in claim 4 in which the ratchet teeth are arranged in two laterally spaced rows which extend into the passageway, engage the grille on opposite sides thereof to hold the way against shifting movement transversely of said passageway.

In testimony whereof I affix my signature.

EDWARD H. SEELERT.